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CLINICAL SUMMARY

BACTERIAL MIGRATION THROUGH PUNCTURED SURGICAL GLOVES UNDER REAL SURGICAL CONDITIONS

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BACKGROUND

Intact surgical gloves are a barrier against the transmission of blood-borne pathogens. However, recent research indicates that unnoticed micro-perforations in gloves can develop depending on the length of wear and the nature of the surgical procedure performed. This study aimed to validate previous findings, namely that bacterial transmission can occur from the surgical site through the micro-perforations in surgical gloves.

OBJECTIVES AND METHODS

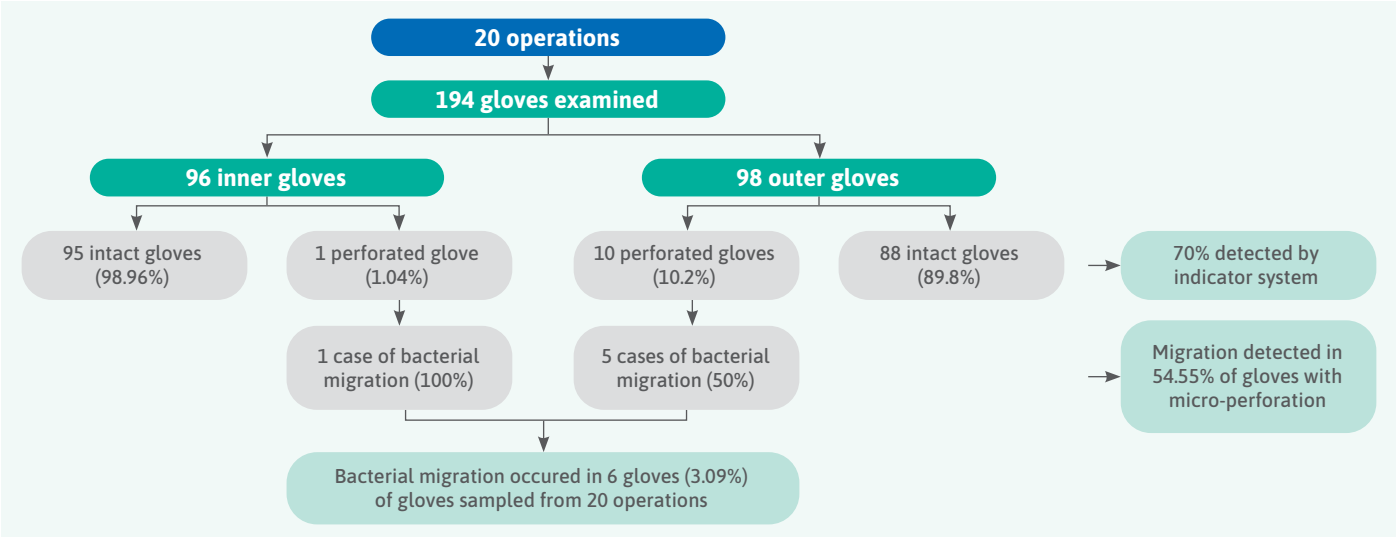
The modified and standardized Gaschen-Bag method was used to identify bacterial migration from the surgical site through the punctured glove. Over a six-month period, double-gloving surgical gloves were used during colorectal surgeries where inner gloves' microbial content were examined. They were subsequently compared with microorganisms detected by an intraoperative swab.

RESULTS

194 gloves were examined, which consisted of 98 outer gloves and 96 inner gloves that were used in 20 consecutive surgeries. Perforations were found in 10 (10.2%) of outer gloves and 1 (1.04%) of inner gloves. The rate of micro-perforation of the outer glove wearing time represents a range of 20-175 minutes with a median wearing time of 100 minutes.

In a total of six cases, bacterial migration was observed through micro-perforations and could be demonstrated microbiologically, as sampled from 20 operations. Bacterial migration through micro-perforation was seen in 5% of the examined outer gloves and 1% of the examined inner gloves. For the outer layer, the total migration was 50% (n=5), representing a minimum wearing time of 62 minutes, and a median wearing time of 71 minutes.

Gloves, perforations/migration detected and performance of the indicator system



CONCLUSION

The study confirms that micro-perforations in surgical gloves allow bacterial migration to occur in real surgical conditions. The detected frequency with which micro-perforations allowed bacterial migration from the patient to the hands of the surgeon was confirmed. This illustrates that the protective barrier function of such compromised gloves is diminished, particularly over extended periods, allowing bacterial migration to occur due to undetected micro-perforation. This information aligns with previous results.

APPLICATION FOR PRACTICE

1. Change gloves every 90 minutes especially in lengthy surgeries

2. Double glove with a dark-colored underglove

3. Follow best clinical practice and assess the risk prior to any surgeries

** Dr. Assadian has performed paid consulting work for Quantum Management & Service, a paid service provider of Ansell and/or it s affiliates.*

Note: This clinical summary is written by clinicians at Ansell Healthcare Products LLC. Please refer to the actual study for full text information.

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